

CLAIMS:

1. A method of constructing an address lookup table in system memory for a network switch, said method comprising the steps of:

snooping a communication channel in a network switch for lookup table information;

upon detection of lookup table information on said communication channel, transmitting the lookup table information to a remote system memory, thereby constructing a lookup table in the remote system memory.

2. A method as recited in claim 1, wherein said address lookup information includes at least one of lookup table insert messages and lookup table delete messages.

3. A method as recited in claim 1, said method comprising a step of accessing the lookup table via a CPU, to search for a selected address.

4. A method as recited in claim 1, wherein said system memory is dedicated for CPU operation.

5. A method as recited in claim 1, wherein said lookup table information synchronizes a plurality of address lookup tables within the network switch, and wherein transmitting of the lookup table information to the remote system memory synchronizes the lookup table in the remote system memory with the plurality of address tables.

6. A method of performing lookups on a network switch, said method comprising the steps of:

providing at least one lookup table on a network switch;

providing a communication channel in the network switch, said communication channel communicating lookup information to the lookup table;

snooping the communication channel for lookup table information being communicated thereupon;

transmitting said lookup table information to a remote system memory, said lookup table information creating a duplicate address lookup table in the remote system memory;

accessing the remote system memory via a CPU to search for selected address information.

7. A method of performing lookups as recited in claim 6, wherein said step of transmitting the lookup table information to the remote system memory is performed by a DMA operation.

8. A method as recited in claim 6, wherein said step of snooping the communication channel comprises a step of passively observing the communication channel, and detecting and transmitting only predetermined message types from the communication channel to the remote system memory.

9. A method as recited in claim 6, wherein said step of accessing the remote system memory via the CPU comprises a DMA operation.

10. A method of processing packets in a network switch, said method comprising the steps of:

inserting a stack-specific tag into a packet;

processing the packet in a stack of network switches in accordance with tag information in the stack-specific tag; and

removing the stack-specific tag from the packet;

constructing a lookup table for the network switch in a system memory, said method of constructing the lookup table comprising the steps of snooping a communication channel in a network switch of said stack of network switches, for lookup table information being communicated thereupon, and upon detection of lookup table information on said communication channel, transmitting the lookup table information to a remote system memory, thereby constructing a lookup table in the remote system memory.

11. A method as recited in claim 10, wherein said stack-specific tag includes information relating to at least one of stack count, trunk group information, and mirroring information.

12. A method as recited in claim 10, wherein the processing step further comprises forwarding the packet to a mirroring port in accordance with mirroring information in the stack-specific tag.

13. A method as recited in claim 12, wherein the step of forwarding to the mirroring port includes a step of selectively forwarding the packet to a destination port in accordance with the mirroring information.

14. A method as recited in claim 13, wherein the mirroring information includes a first field containing a mirroring indicator and a second field including a destination indicator indicating whether the packet is to be sent to the destination port.

15. A method as recited in claim 10, wherein the processing step further comprises processing trunk group information in the stack-specific tag, said trunk group information controlling port selection among network switches in the stack.

16. A method as recited in claim 15, wherein the processing step processes information relating to a trunk group associated with a source port.

17. A method as recited in claim 15, wherein the processing step processes information relating to a trunk group associated with a destination port.

18. A method as recited in claim 15, wherein said processing step includes processing information in the stack-specific tag regarding whether one of a source port and a destination port is part of a trunk group, and information regarding selecting communication ports associated with the trunk group.

19. A method as recited in claim 18, wherein said processing step further comprises processing information regarding selected communication ports associated with trunk groups including specific trunk information and specific trunk port selection information.

20. A method as recited in claim 10, wherein said address lookup information includes at least one of address lookup table insert messages and address lookup table delete messages.

21. A method as recited in claim 10, said method further comprising a step of accessing the address lookup table via a CPU, to search for a selected address.

22. A method as recited in claim 10, wherein said system memory is dedicated for CPU operation.

23. A method as recited in claim 10, wherein said address lookup table information synchronizes a plurality of address lookup tables within the network switch, and wherein transmitting the address lookup table information to the remote system memory synchronizes the address lookup table in the remote system memory with the plurality of address tables.

24. A network switch, said network switch comprising:

at least one lookup table therein, said lookup table being constructed based upon lookup messages transmitted over an internal communication channel;

snoop logic connected to a remote system memory, said snoop logic also being connected to the internal communication channel to detect lookup table information being transmitted on said channel, and transmit said lookup table information to said remote system memory;

wherein said snoop logic creates a duplicate lookup table in said remote system memory, for direct memory access by a remote CPU.

25. A network switch as recited in claim 24, wherein said snoop logic includes DMA circuitry to transmit the lookup table information to the remote system memory via a DMA operation.

26. A network switch as recited in claim 24, wherein said network switch comprises a single silicon substrate.

27. A network switch as recited in claim 24, said network switch further comprising a tag insertion unit for inserting a stack-specific tag into a packet;

a processing unit for processing the packet in a stack of network switches in accordance with tag information in the stack-specific tag; and

a removing unit for removing the stack-specific tag from the packet when the packet is being switched to a destination port.

28. A network switch as recited in claim 27, wherein said stack-specific tag inserted by said insertion unit includes information relating to at least one of stack count, trunk group information, and mirroring information.

29. A network switch as recited in claim 27, wherein the stack-specific tag includes trunk group information, and wherein the processing unit utilizes the trunk group information to control port selection among network switches in the stack.

30. A network switch as recited in claim 29, wherein the processing unit processes information relating to a trunk group associated with a source port.

31. A network switch as recited in claim 29, wherein the processing unit processes information relating to a trunk group associated with a destination port.

32. A network switch as recited in claim 29, wherein the processing unit processes information in the stack-specific tag regarding whether one of a source port and a destination port is part of a trunk group, and information regarding selected communication ports associated with the trunk group.

33. A network switch as recited in claim 32, wherein said processing unit processes information regarding selected communication ports associated with the trunk groups, including specific trunk group information and specific trunk port selection information.